



Contact

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Melaka, Malaysia

Core skills

System design and prototyping

Requirements to architecture, prototype iterations, field-ready products

Lightning detection systems

MDF and VHF sensors, time of arrival, interferometry

Embedded and hardware

Raspberry Pi, ESP32, PicoScope, Modbus TCP, GPS timing

CAD design

Fusion 360 and KiCad, advanced

Software

Python, Laravel, Node.js, C and C++, MongoDB

Signals and imaging

NumPy, OpenCV, TensorFlow, cross-correlation

Servers and networks

Proxmox, TrueNAS, Linux, Docker, WireGuard, CCTV

Field engineering

Site survey, tower and rooftop installation, commissioning

Languages

Malay · native
English · professional

Nur Zahin Azhari bin Nazifunnur

Chief Technical Officer · KILATHOR Laboratories Sdn. Bhd.

Computer engineer focused on system design and product development: turning a requirement into a system architecture, building prototypes, and iterating them into products that run in the field. Leads design of the KILAT-3000 lightning detection and alarm system, across hardware, embedded, backend and infrastructure, for industrial and research clients.

Experience

Chief Technical Officer

2025 – present

KILATHOR Laboratories Sdn. Bhd., UTeM Start-up Centre, Melaka

- Leads system design and product development of the KILAT-3000 lightning location and alarm system, from requirements to deployment.
- Designed and developed the lightning alarm unit in-house: controller PCB prototyped and iterated to v3, then packaged as a field unit driving sirens and beacons, now deployed in Malaysia and Japan.
- Designed and developed the kilathorlabs.com platform: live strike map, weather radar and satellite layers, a one-hour rain forecast, and phone, Telegram and WhatsApp alerts.
- Designed the supporting infrastructure: a Proxmox cluster with containerised services and a 24-bay NAS for the data archive and backups.
- Trains partner engineers on installing and running the system.

Technical Expert, Klang Valley System Project

Jan – Dec 2026

KILATHOR Laboratories Sdn. Bhd. (consultancy)

- Technical lead for a new sensor network around Klang Valley: site surveys, antenna installation and validation against other lightning data.

Research Assistant

2024 – present

Universiti Teknikal Malaysia Melaka

- Designed and prototyped the lightning MDF sensor and its Raspberry Pi and high-speed digitizer integration for an industry research grant.
- Built remote site networks for the SATREPS (JICA) project: 4G and WireGuard links, on-site servers and CCTV.
- Part of Malaysia's first rocket-triggered lightning experiment; high-speed imaging on a Phantom T2410.

Certifications and awards

Cisco CCNAv7: Introduction to Networks; Switching, Routing and Wireless Essentials

2024

Cisco Networking Academy; CCNA Security and Machine Learning preparation on the UTeM supplement transcript

ZTE IoT Innovation Challenge, consolation prize

2022

6th of 20 teams with a camera-based connected bus system

Highlights

Presented at ICLP 2026,
Sapporo, Japan, sponsored by
the Japanese government

Rocket design poster at
GlobalEM 2026, Seoul

Malaysia's first rocket-triggered
lightning experiment

Systems installed at a major
shipyard in Pasir Gudang, at
SATREPS (JICA) research sites
and across Klang Valley

Dean's List, twice

ZTE IoT Innovation Challenge
2022, consolation prize

Tools

Laravel, Livewire, Express,
Leaflet, Tailwind

MongoDB, MySQL

Proxmox and LXC, TrueNAS and
ZFS, systemd

Nginx Proxy Manager,
Cloudflare, WireGuard

PicoScope, PCB design and
fabrication, Verilog

Phantom T2410 high-speed
camera (24,270 fps), Modbus
TCP

Git and GitHub

References

Available on request.

 B-1, UTeM Start-up Centre,
Kampus Teknologi, 75450
Ayer Keroh, Melaka
kilathorlabs.com

Selected projects

Lightning alarm system

Prototype to product: an ESP32 relay
controller iterated to version 3,
packaged into a field unit with a 4G
router and 24 V supply that switches
sirens and beacons from the warning
feed. Also deployed in Japan over
Modbus TCP.

SATREPS (JICA) and industrial sites ·
2025–2026

KILAT-3000 at a shipyard

Installed and commissioned
lightning sensor stations on rooftops
and a tower, with the network,
servers and dashboard for the yard's
safety team, and sirens at critical
work areas.

Pasir Gudang, Johor · 2025

kilathorlabs.com platform

Real-time strike map with radar and
satellite overlays, optical-flow rain
forecasting from radar frames, per-
site alarms, and an installable app
with push alerts.

Laravel, Python, OpenCV, MongoDB ·
2025–present

Servers, storage and site
networks

Proxmox compute host (Ryzen 9
9950X, 96 GB) and a 24-bay NAS; 4G
and WireGuard links to every station;
CCTV at remote sites.

KILATHOR and SATREPS · 2025–
present

Klang Valley sensor network

Site surveys, VHF antenna and GPS
installation, and validation of the new
network.

Klang Valley · 2026

IoT close-lightning warning
system

Degree design project: AI
classification of lightning waveform
types, a Raspberry Pi 4 alarm and a
web backend.

UTeM · 2023

Education

Master's by research

In progress

Universiti Teknikal Malaysia Melaka
Thesis: *Performance Evaluation of Real-Time 3D VHF Interferometry Mapping*

Bachelor of Computer Engineering with Honours

2020 – 2024

Universiti Teknikal Malaysia Melaka · Second Upper Class · CGPA 3.19 · Dean's List
twice

Grade A in Embedded System Design, Embedded Software Design, High
Performance Computing, Embedded Wireline and Wireless Systems, Integrated
Design Project, and Degree Project I and II.

Matriculation

2019 – 2020

Kolej Matrikulasi Selangor